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Case of Combined Treatment of Severe Botulism Using Controlled Respiration

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Botulism in our land became a rare disease, consequently we consider of definite interest a description of the clinical practice and treatment of individual cases of botulism, particularly its severe forms. Severe forms of botulism may have a fatal ending due to bulbar paralyses, but the immediate cause of death is the respiratory impairment. Presently, respiratory apparatus found many therapeutic usages, whereby the optimum gaseous metabolism can be maintained for a long time in a patient who lost spontaneous respiration. Thus, by applying a controlled respiration in a combined treatment of severe botulism, we were able to save a patient's life from a threatened asphyxia and to continue to struggle for her recovery.

On the 3d day of her illness, patient B., 30 years old, was admitted on January 3, 1962 to the Blagoveshchensk Medical Institute, hospital's in-patient clinic. She became ill several hours after eating cured back of sturgeon. She had a headache, epigastric

pain and nausea, but no vomiting and no diarrhea. On the next day she suffered the impairment of vision after contours of objects lost their clearness, then appeared a feeling of a foreign body in her throat, regurgitation of gas and indistinctness of speech.

The examination revealed a bilateral ptosis and mydriasis, also a contraction of bulbi oculi. The internal organs showed no deviations from normal conditions. The pulse rate was of 80 rhythmic beats per minute, the arterial pressure 100/80 mm and the temperature 36.8° . On the next day the described symptoms also included the impairment of phonation (nasalized speech), a muscular weakness and a choking deglutition.

We made a diagnosis of botulism and began the treatment with antitoxine serums A, B and C at the rate of 150,000 AE per day; we also used antibiotics, cardiac stimulants, glucose, proserine (TM: neostigmine) and vitamins. Toward the evening of January 4 the respiration became aggravative and the first symptoms of hypoxia (tachycardia, tachypnea) appeared. This necessitated the operation of tracheotomy. Nevertheless, the patient's condition continued to get worse. On January 5 the muscular weakness became intensified, pains appeared in the entire abdomen associated with meteorism and, at 2:30 A.M., on January 6, the respiratory standstill began. The patient was switched over to controlled respiration by way of the DP-2 apparatus with the cycle: inspiration +17 mm, expiration -7 mm Hg and the rhythm was 16 respirations per minute. Due to nonhermetic fitting of the tracheotomy tube, the respiration was carried out through a mask, while the tracheotomy tube was tightly tamponaded with gauze; it was uncovered only for removal

of mucus from the trachea with the aid of suction by the same apparatus. Clear consciousness returned to the patient and she was able to communicate the impressions of her own condition in writing. Because she was unable to swallow independently, the food and liquid were injected with the aid of a feeding tube. The patient remained 3 days on controlled respiration; the latter was administered for the next two days only sporadically. On January 11 the independent respiration was fully reestablished; ptosis was reduced on January 8; first swallowing motions appeared on January 11; patient's speech began to return on January 13. The tracheotomy tube was removed on January 19 after the patient's cough reflex was completely restored. The impairments in cranial innervation disappeared on January 25, with the exception of slight decrease in the pharyngeal reflex. From January 6 to January 11 the patient was particularly restless on account of meteorism and abdominal pains; it was difficult to evacuate the bowels and to exhaust gases with the aid of enema and colonic tube. The abdominal distention and resulting local pains worried the patient until her discharge from the hospital. At the time of respiratory difficulties the course of illness became complicated due to bronchopneumonia.

The convalescence period was marked by cardiac pains and heart beatings. The electrocardiogram showed signs characteristic to myocardial dystrophy.

During the progress of changes no peripheral changes were noted in the blood and urine. We subsequently noticed neutrophil leukocytes up to 9,950 and accelerated RBC (erythrocyte sediment-

tation reaction) up to 39 mm per hour. The cerebrospinal fluid showed no peculiarities.

The patient was discharged from the hospital on the 75th day after admission.

We found in the available literature no similar methods of the botulism treatment with the aid of controlled respiration.